



Challenges in studying the risks of cellphones and driving

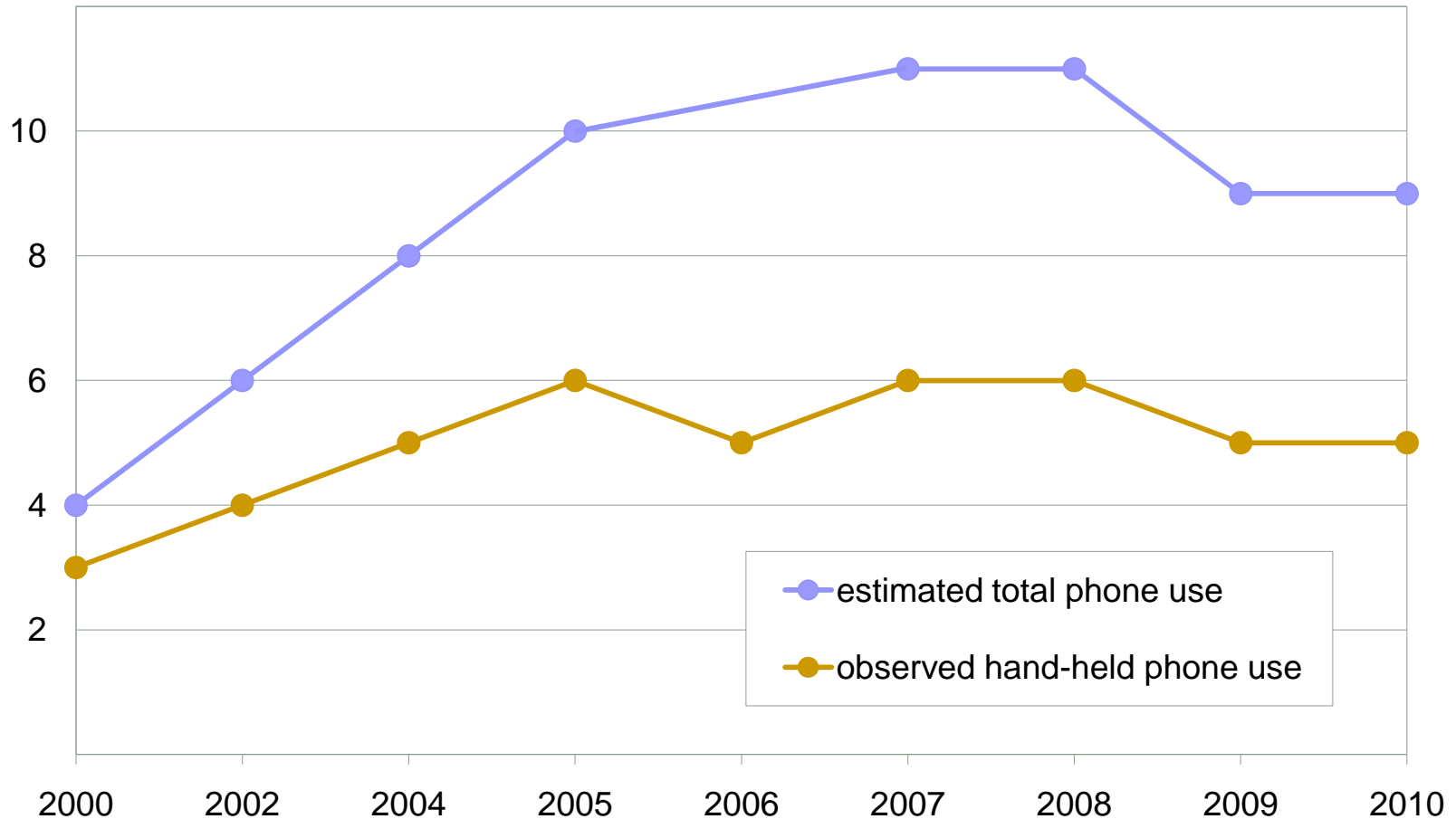
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NTSB Forum on Attentive Driving
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Many drivers use cellphones

National observational surveys, NHTSA, 2000-10



Experimental studies show hand-held and hands-free phone tasks degrade simulated or test-track driving performance

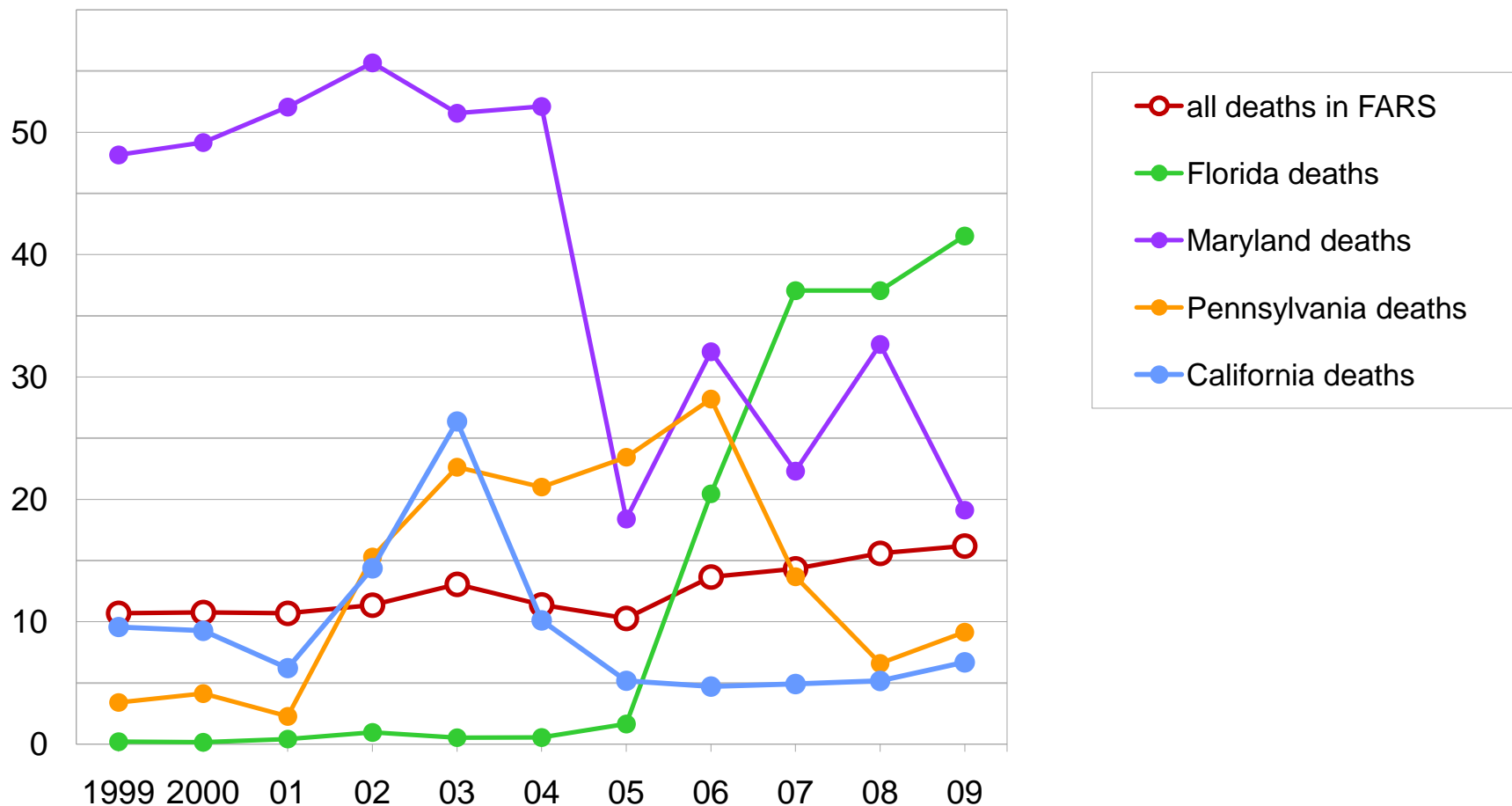
- Strengths
 - Isolate effects of cellphone tasks (e.g., manual dialing, conversation type) by controlling for potential confounding variables (e.g., demand of driving task)
- Limitations
 - Small volunteer samples
 - Driving and distraction tasks paced by experimenters, not drivers, and may be unrealistic
 - Unknown whether findings pertain to drivers using phones in their own vehicles because of learning effects, self-regulation, or other factors

Naturalistic driving studies found dialing and texting, but not conversation, increase risk of crash surrogates

- Strengths
 - Drivers using own phones in own vehicles can be observed for an extended period of time
 - Hand-held phone use can be verified at time of safety-relevant events and for control periods of driving
- Limitations
 - Small samples of crashes preclude estimating crash risk and necessitate use of crash surrogates (e.g., near-crash, traffic conflicts)
 - Documentation of hands-free phone use less reliable

Distraction is not reliably coded in police-crash reports

Percent of deaths involving driver distraction, FARS, by calendar year

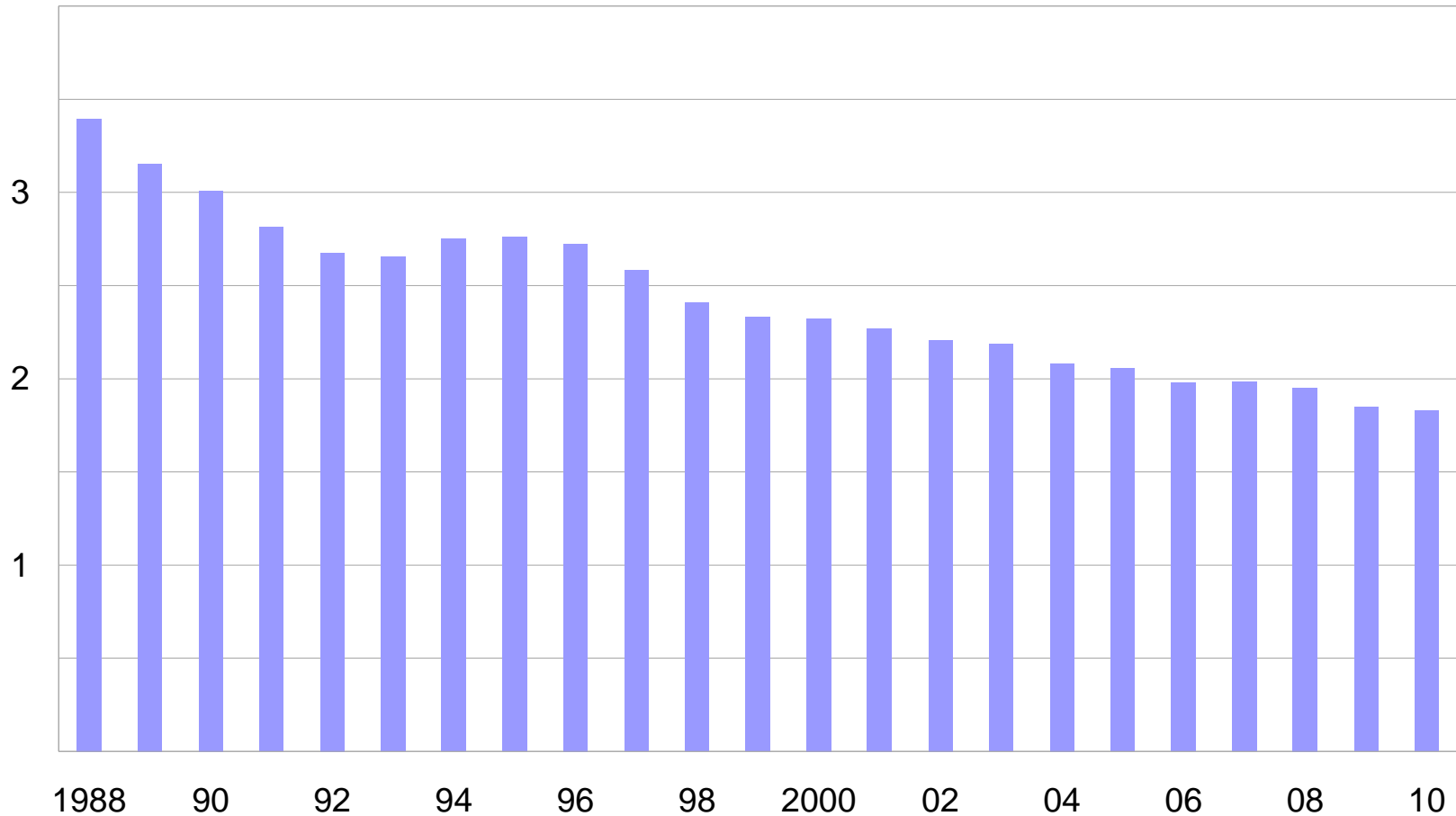


Studies verifying crash-involved drivers' phone use found increased risk with hand-held and hands-free phones

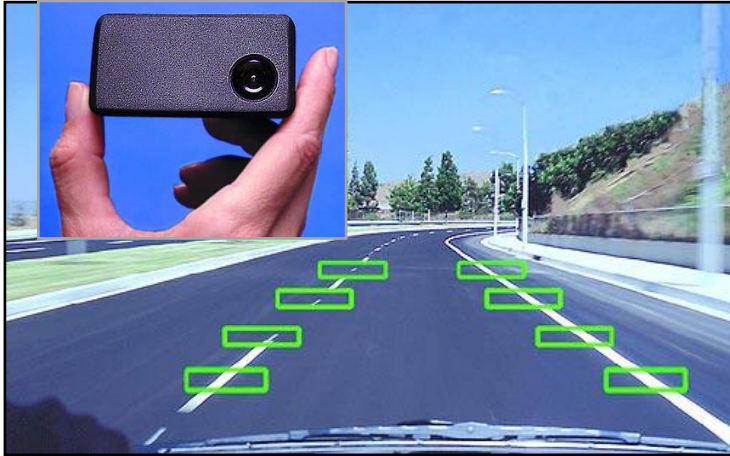
- Strengths
 - Large samples of real-world crashes
 - Cellphone billing records used to verify phone use at time of crash and during control driving periods
- Limitations
 - Reasons for talking on phone may not be independent of crash risk
 - Drivers with higher crash risk may be affected by phone use differently than lower risk drivers
 - Documenting driving in crash and control periods dependent on drivers' recollections

All police-reported crashes per million miles traveled

By calendar year



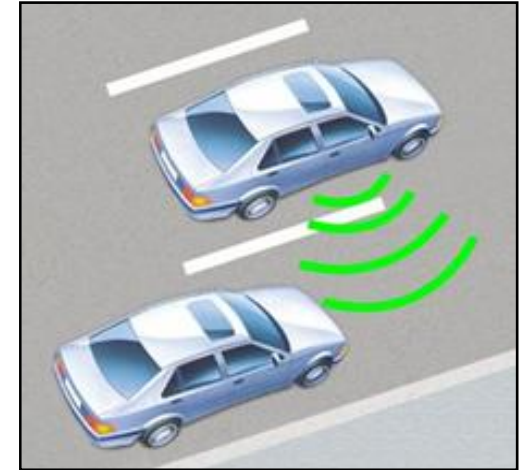
We may be able to reduce the problem of distraction without fully understanding it



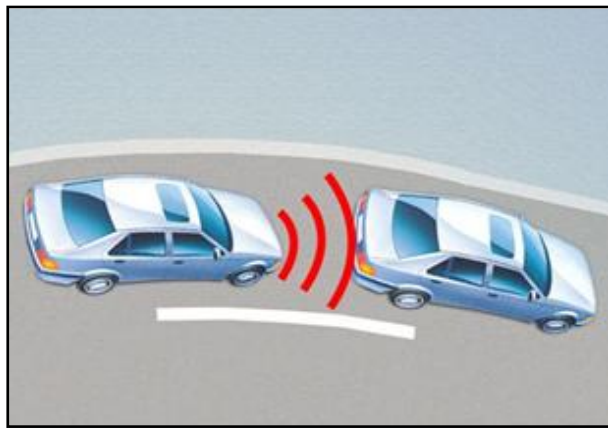
lane departure prevention



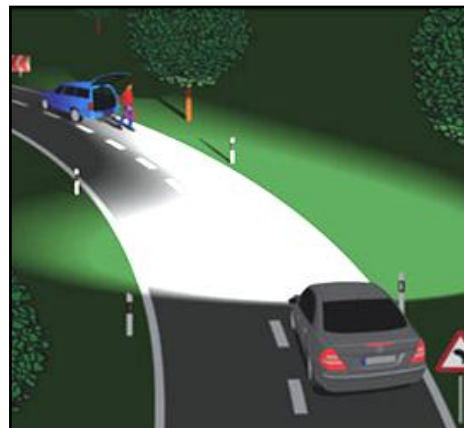
crash notification



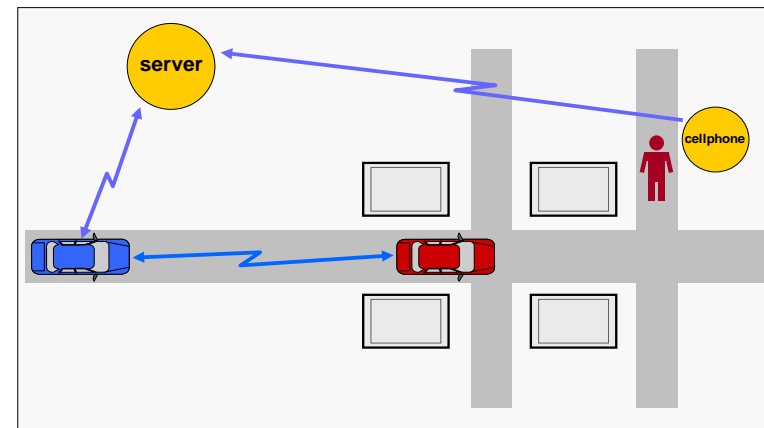
blind spot detection



forward collision warning
and auto braking



adaptive headlights



vehicle-to-vehicle communication